

REMARKS

Claims 2, 4, 6, 8-11 and 15-53 are pending in the application.

Applicants note with appreciation the indication that claims 6, 8, 16, 18, 19 and 21 are allowed and that claims 9, 11, 30-32, 34, 42, 44, 45, 47, 48, 50, 51 and 53 are allowable.

Claims 2, 4, 10, 15, 22-29, 33, 35-41, 43, 46, 49 and 52 were rejected over ABE et al. 6,661,476 in view of SHIMADA et al. 6,448,578. That rejection is respectfully traversed.

The position set forth in the Official Action is that ABE discloses each of the recited limitations except for the first and second multi-level films having TiN at the top, Al below the TiN, and Ti above or below the Al. The Official Action also recognizes that ABE fails to disclose the recited nitrogen concentration being 25 atomic % or more.

SHIMADA is offered for these limitations with the Official Action concluding that it would have been obvious to modify ABE to include the limitations of SHIMADA.

However, this conclusion is believed to be untenable for at least the following reason.

SHIMADA does not disclose that for which it is offered.

Each of independent claims 2, 15, 22 and 35 recites a TiN film having a nitrogen concentration of 25 atomic % or higher.

Although SHIMADA discloses nitrogen, nevertheless, the values associated with nitrogen are with respect to the nitrogen partial pressure ratio during sputtering. Column 7, lines 4-35 of SHIMADA discloses forming a titanium film containing nitrogen by reactive sputtering, while changing the nitrogen partial pressure ratio as a formation parameter. SHIMADA does not disclose a relationship between the partial pressure ratio and atomic %. Rather, SHIMADA is silent as to atomic %.

One of ordinary skill in the art would recognize that the content of nitrogen in the TiN film and the partial pressure of nitrogen during the film formation process varies in accordance with the type and/or structure of the film formation apparatus used and other film conditions.

Moreover, the resultant film formed during a film formation process would still have to be measured to determine the TiN concentration. Accordingly, SHIMADA not only fails to establish a relationship between the partial pressure of nitrogen during the film formation process and the resultant atomic weight, but also fails to suggest that a particular range of TiN is desired or preferred.

It is well settled that to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

As SHIMADA does not disclose a TiN film having a nitrogen concentration of 25 atomic % or higher as recited, all the claim limitations are not taught or suggested.

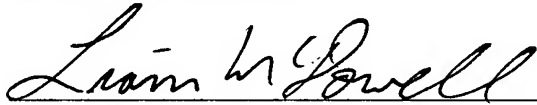
The above noted limitation is missing from each of the references, is absent from the combination, and thus, would not have been obvious to one having ordinary skill in the art.

In view of the foregoing remarks, it is believed that the present application is in condition for allowance. Reconsideration and passage to issue are respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON

A handwritten signature in cursive script, reading "Liam McDowell", is written over a horizontal line.

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